

## REMARKS

The Office Action dated March 27, 2006, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 3, 6, 7, 13, 16, 24, 26, 28 and 32 have been amended. Claims 4, 5, 8 and 27 have been cancelled. Claim 35 has been added. No new matter has been added, and no new issues are raised which require further consideration and/or search. Claims 1, 3, 6, 7, 9-24, 26, and 28-35 are submitted for consideration.

Claims 1, 3-24 and 26-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,268,828 to Martek. According to the Office Action, Martek does not disclose a predetermined coverage area. However, the Office Action claims that the predetermined coverage area would have been obvious. The rejection is traversed as being based on a reference that neither teaches nor suggests the novel combination of features clearly recited in independent claims 1 and 24, and claims 3-23 and 26-34 dependent thereon, and corresponding apparatus claim 35.

Claim 1, upon which claims 3, 6, 7, 9-23 depend, recites an antenna arrangement including at least two antennas for providing radio coverage to a plurality of user equipments in a predetermined area of a mobile communications network. The at least two different antennas being arranged to have different vertical properties to thereby provide at least two different areas of radio coverage within the predetermined area, and there being provided a plurality of frequencies for use in the predetermined area, the

arrangement. The antenna arrangement is configured to dynamically adjust transmission properties of at least one of the antennas based on a distribution of users within the predetermined area and frequency requirements for users within the predetermined area. The antenna arrangement is further configured to dynamically allocate at least one user equipment to at least one group associated with at least one of the at least two antennas based on link characteristics of a user equipment and dynamically allocate at least one of the plurality of frequencies to the at least one group.

Claim 24, upon which claims 26 and 28-34 depend, recites a method including arranging at least two different antennas to have different vertical properties to thereby provide at least two different areas of radio coverage within the predetermined area. The method also includes providing a plurality of frequencies for use in the predetermined area, dynamically adjusting transmission properties of at least one of the antennas based on a distribution of users within the predetermined area and frequency requirements for users within the predetermined area, and dynamically allocating each user equipment to at least one group associated with at least one of the at least two antennas based on link characteristics of a user equipment and dynamically allocating at least one of the plurality of frequencies to the at least one group. The method is used for controlling an antenna arrangement including at least two antennas for providing radio coverage to a plurality of user equipment in the predetermined area of a mobile communications network.

As will be discussed below, the cited prior art reference of Martek fails to disclose or suggest the elements of any of the presently pending claims.

Martek teaches that an antenna providing transmit, receive or both, is constructed as a series of antenna dipole columns mounted in close proximity to the outer surface of a nearby vertical conical shaped electrical ground surface. The ground surface is constructed circumferentially around a mast and the conical "slope" and is such that the ground surface faces downward at an angle, thereby creating on the ground a circumference within which the signal is propagated. Col. 4, lines 10-25, Col. 8, lines 7-46. Martek, therefore, discloses that an antenna is formed around a downward facing cone, comprised of columns of individual antenna elements. These columns of elements can be driven in such a way (by controlling the relative phases of the signals in the element) so as to "beam-form" the beam produced by the overall antenna. The beam-forming can also be done to produce a down-tilted beam by shifting the phase of the lower elements in a column, relative to upper elements.

Applicant submits that Martek simply fails to teach or suggest each element of the presently pending claims. Claim 1, in part, recites an antenna arrangement configured to dynamically allocate at least one user equipment to at least one group associated with at least one of the at least two antennas based on link characteristics of a user equipment and dynamically allocate at least one of the plurality of frequencies to the at least one group. Claim 24, in part, recites dynamically allocating each user equipment to at least one group associate with at least one of the at least two antennas based on link characteristics of a user equipment and dynamically allocating at least one of the plurality of frequencies to the at least one group. Martek does not teach or suggest allocating

frequencies to groups of users associated with at least one antenna. Rather, Martek only mentions the use of the antenna in CDMA systems where all the users share the same frequency. See column 2, line 45-48 of Martek. In particular, Martek does not teach or suggest the dynamic allocation of frequencies. Furthermore, Martek does not give any indication that the different antennas could be allocated different frequencies, dynamically or otherwise. Martek also does not provide any motivation for one skilled in the art to derive that different antenna could be allocated different frequencies, dynamically or otherwise.

Martek discloses an antenna formed around a downwardfacing cone, comprised of columns of individual antenna elements. These columns of elements, in Martek, can be driven in such a way, by controlling the relative phases of the signals in the elements, so as to “beam-form” the beam produced by the overall antenna. The beam-forming, of Martek, can also be done to produce a downtilted beam by shifting the phase of the lower elements in a column, relative to the upper elements. Thus, Applicants also continue to submit that Martek does not disclose that the antennas produce “at least two different areas of radio coverage within the predetermined area”, as also recited in claims 1 and 24. Rather, Martek discloses that only one single overall beam is produced by the upper and lower elements, and hence only produces one area of radio coverage. Based on the reasons presented above, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because Martek simply fails to teach or suggest each

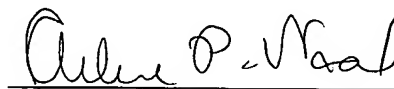
feature of claims 1 and 24 and hence, dependent claims 3, 6, 7, 9-23, 26 and 28-34 thereon.

As noted previously, claims 1, 3, 6, 7, 9-24, 26, and 28-35 recite subject matter which is neither disclosed nor suggested in the prior art references cited in the Office Action. It is therefore respectfully requested that all of claims 1, 3, 6, 7, 9-24, 26, and 28-35 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Petition for Extension of Time; Additional Claim Fee Transmittal; and  
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